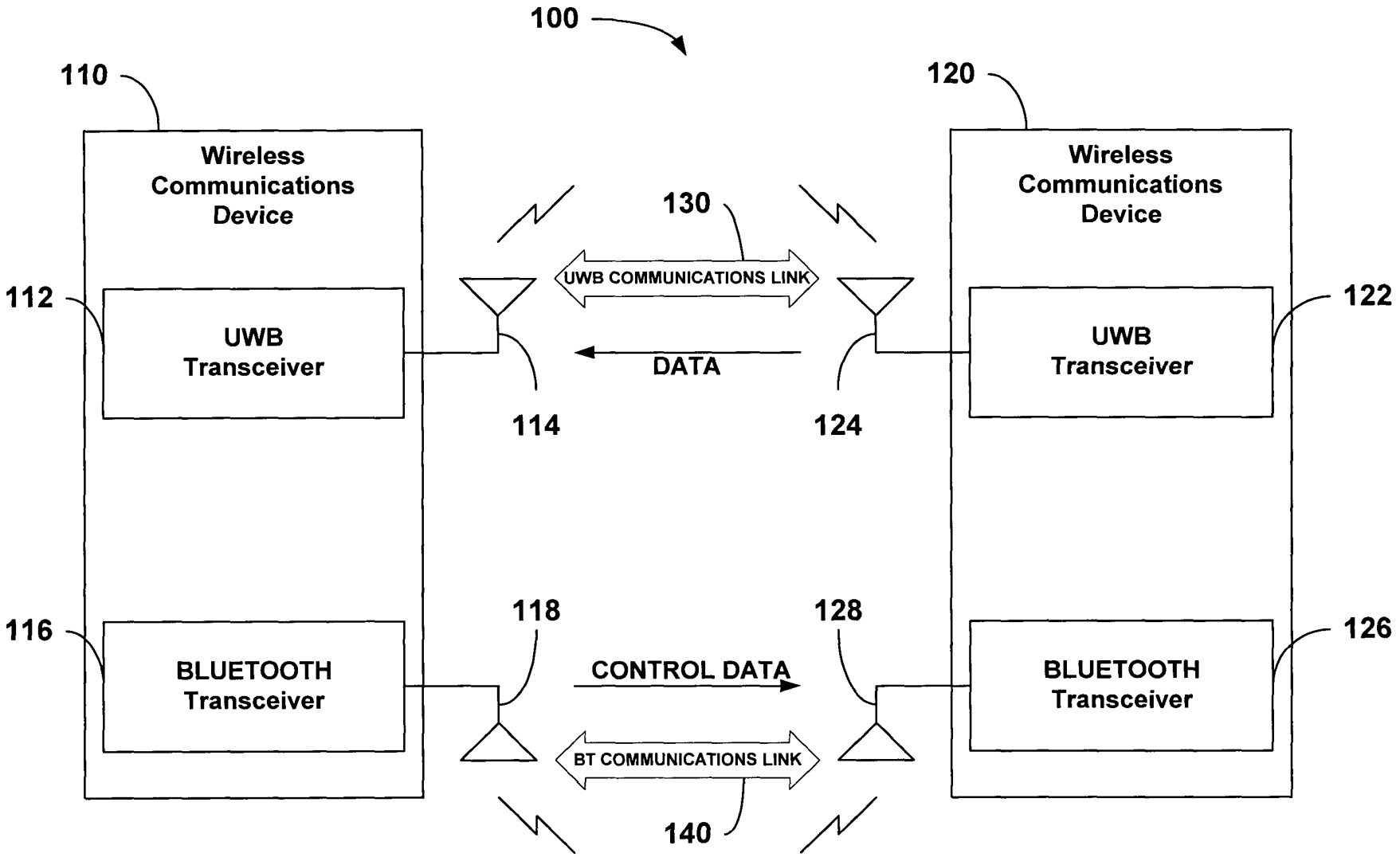
100
110
Wireless Communications Device
120
Wireless Communications Device
130
UWB COMMUNICATIONS LINK
112
UWB Transceiver
DATA
122
UWB Transceiver
114
124
116
118
128
126
BLUETOOTH Transceiver
CONTROL DATA
BLUETOOTH Transceiver
BT COMMUNICATIONS LINK
140

FIG. 1

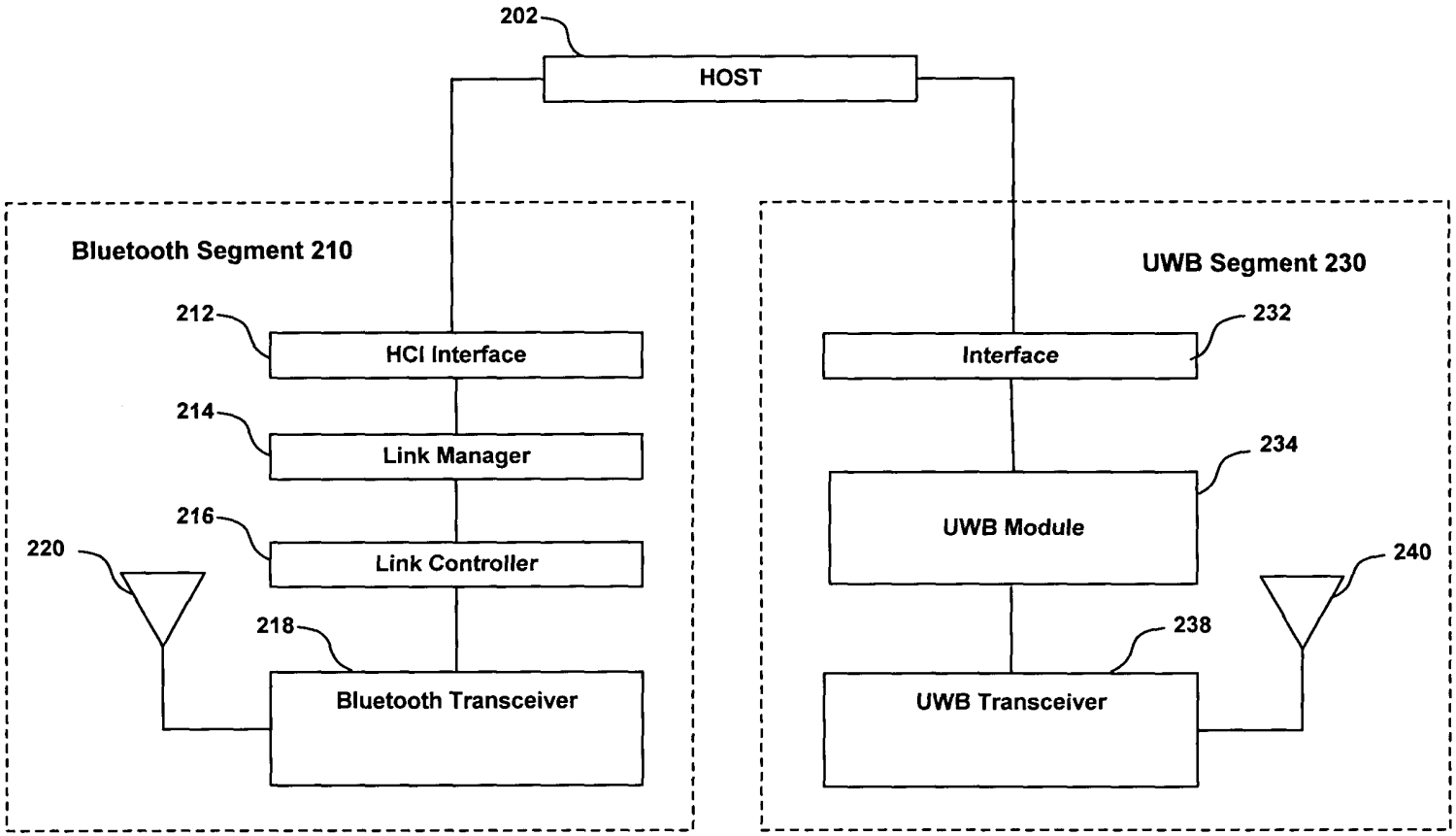
202
HOST
Bluetooth Segment 210
UWB Segment 230
212
HCI Interface
214
Link Manager
216
Link Controller
220
218
Bluetooth Transceiver
232
Interface
234
UWB Module
240
238
UWB Transceiver

FIG. 2

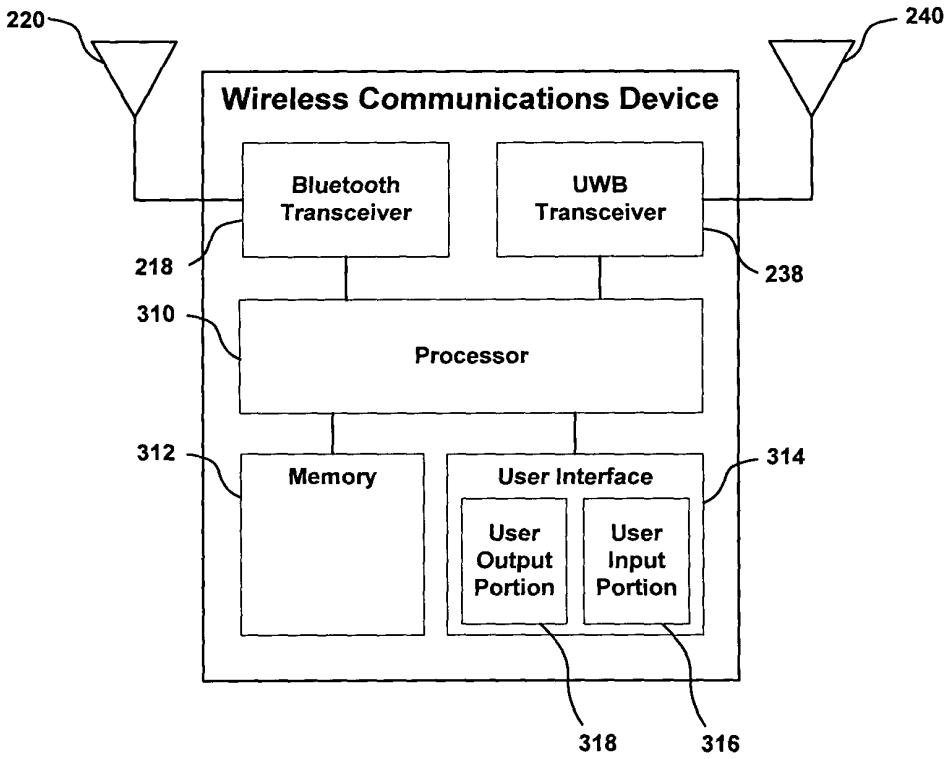
220
240
Wireless Communications Device
Bluetooth Transceiver
UWB Transceiver
218
238
310
Processor
312
Memory
User Interface
314
User Output Portion
User Input Portion
318
316

FIG. 3

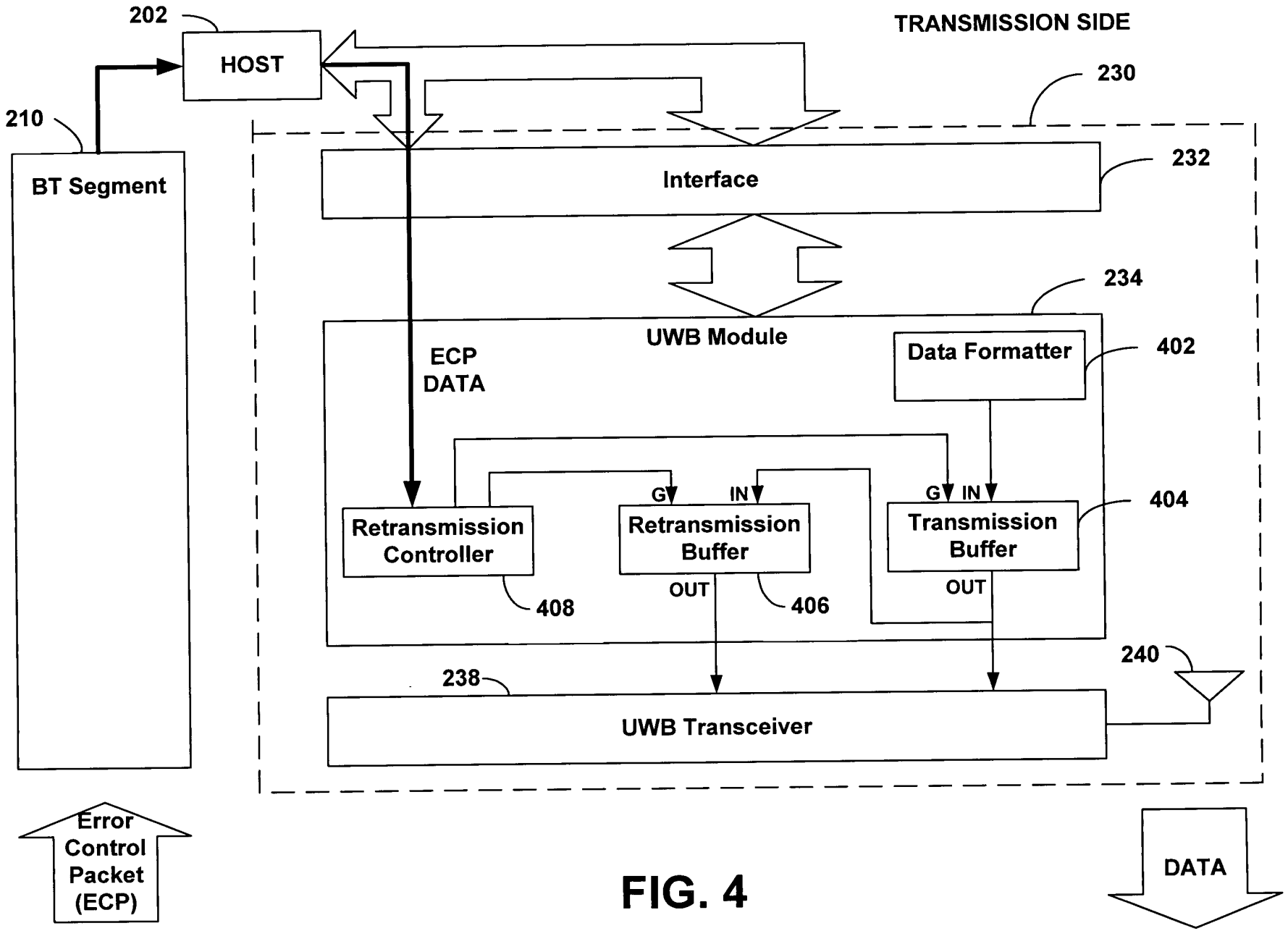
202
HOST
TRANSMISSION SIDE
230
210
BT Segment
Interface
232
234
UWB Module
ECP
DATA
Data Formatter
402
G
IN
G
IN
Retransmission
Controller
Retransmission
Buffer
Transmission
Buffer
404
OUT
OUT
408
406
240
238
UWB Transceiver
Error
Control
Packet
(ECP)
DATA

FIG. 4

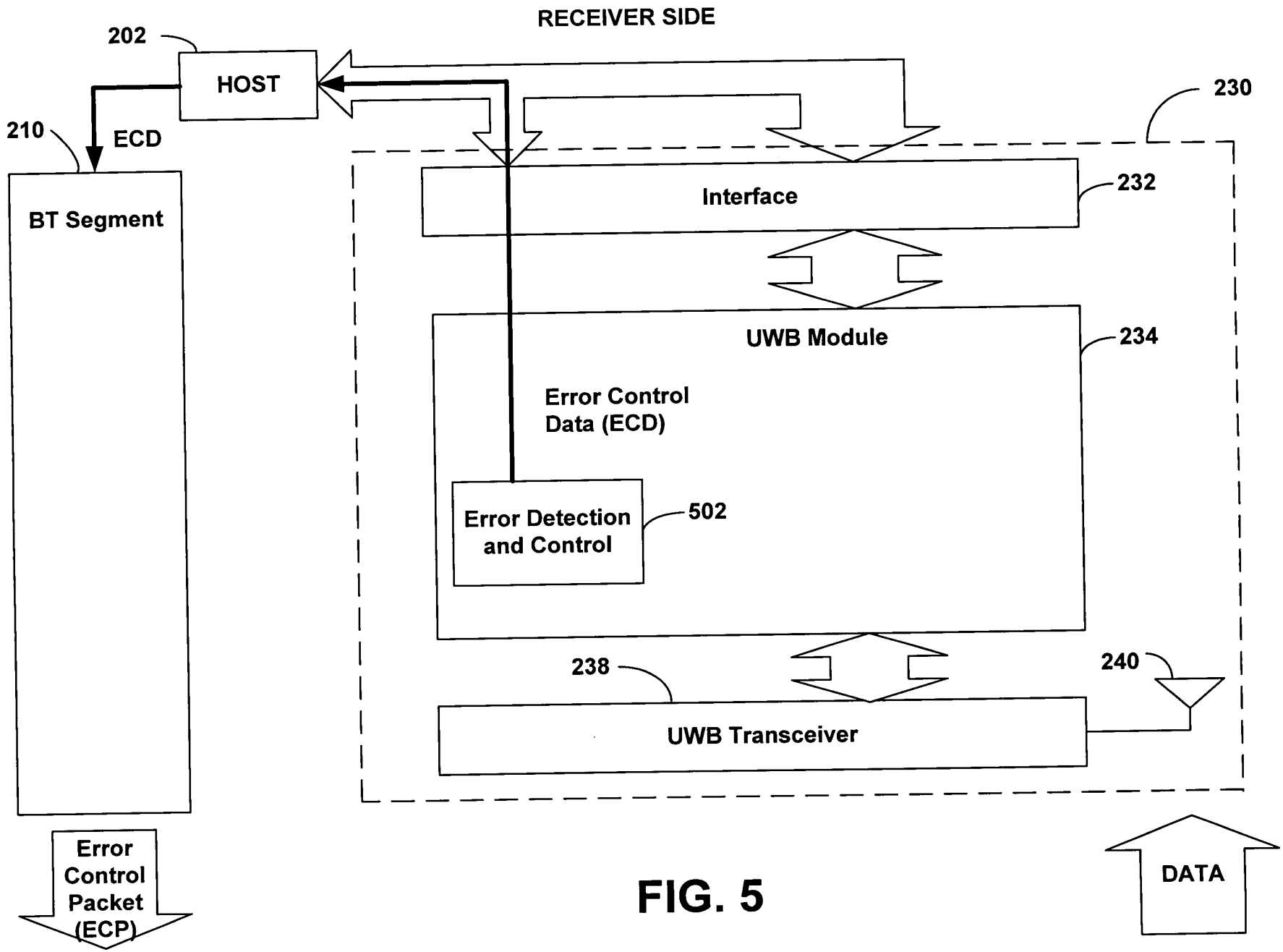
RECEIVER SIDE
202
HOST
210
ECD
BT Segment
230
Interface
232
UWB Module
234
Error Control
Data (ECD)
Error Detection
and Control
502
238
UWB Transceiver
240
Error
Control
Packet
(ECP)
DATA

FIG. 5

DATA PACKET 600

INFO FIELD (Number of data fields, length of data fields, length of the last data field, continuation bit(s), block number (BN)) + CRC					
SN	DATA (field)	CRC	SN	DATA (field)	CRC
SN	DATA (field)	CRC	SN	DATA (field)	CRC
SN	DATA (field)	CRC	SN	DATA (field)	CRC
SN	DATA (field)	CRC	SN	DATA (field)	CRC

FIG. 6

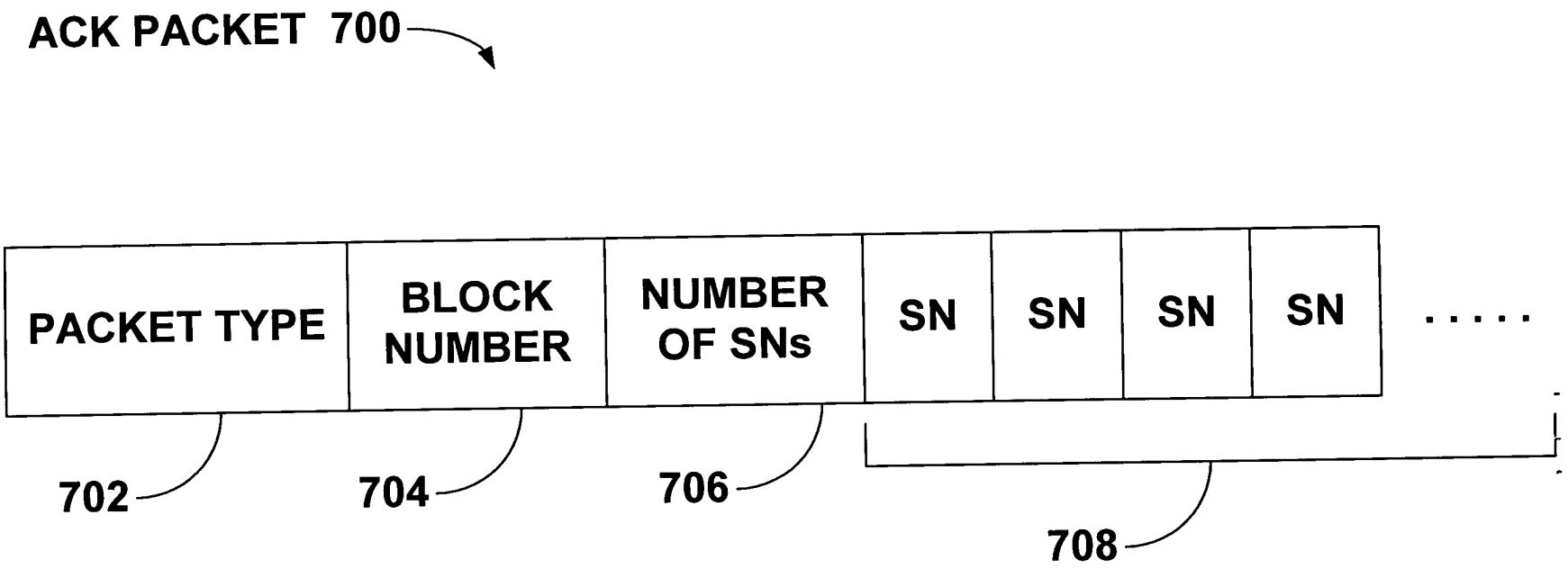
ACK PACKET 700
PACKET TYPE
BLOCK NUMBER
NUMBER OF SNs
SN
SN
SN
SN
.....
702
704
706
708

FIG. 7

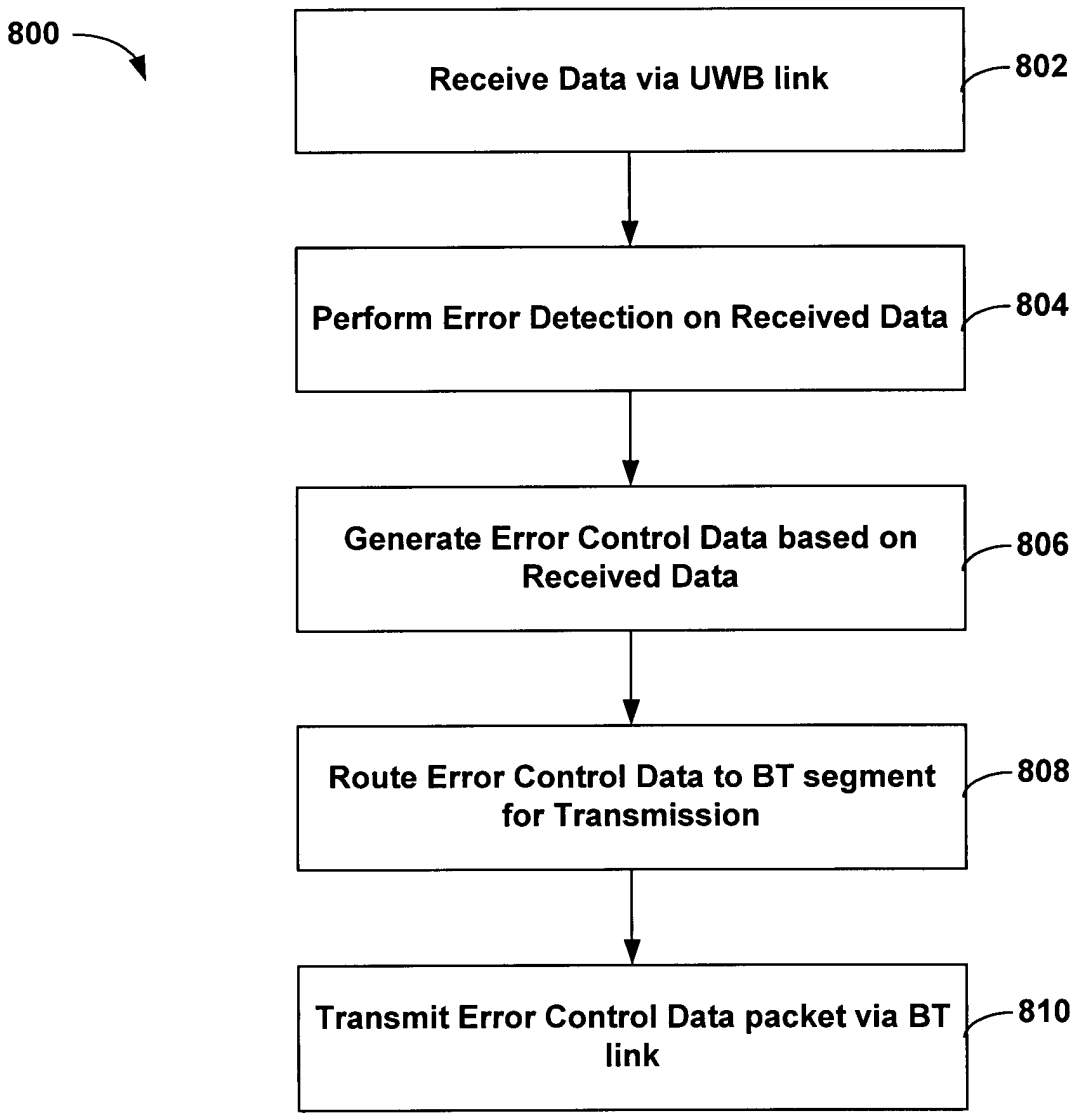
800
Receive Data via UWB link
802
Perform Error Detection on Received Data
804
Generate Error Control Data based on Received Data
806
Route Error Control Data to BT segment for Transmission
808
Transmit Error Control Data packet via BT link
810

FIG. 8

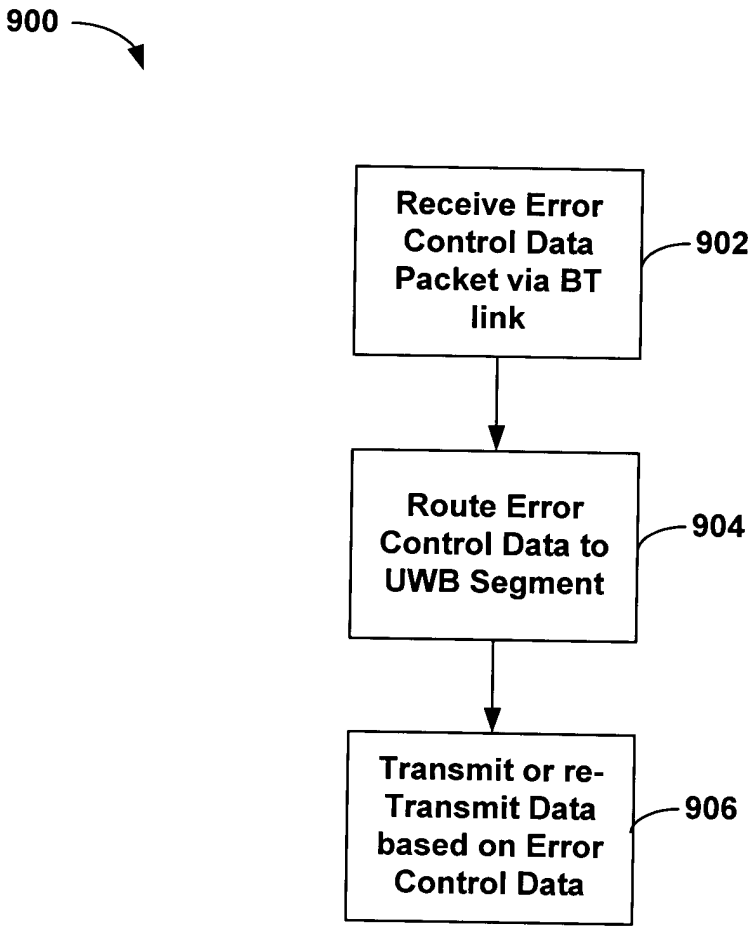
900
Receive Error Control Data Packet via BT link
902
Route Error Control Data to UWB Segment
904
Transmit or re-Transmit Data based on Error Control Data
906

FIG. 9

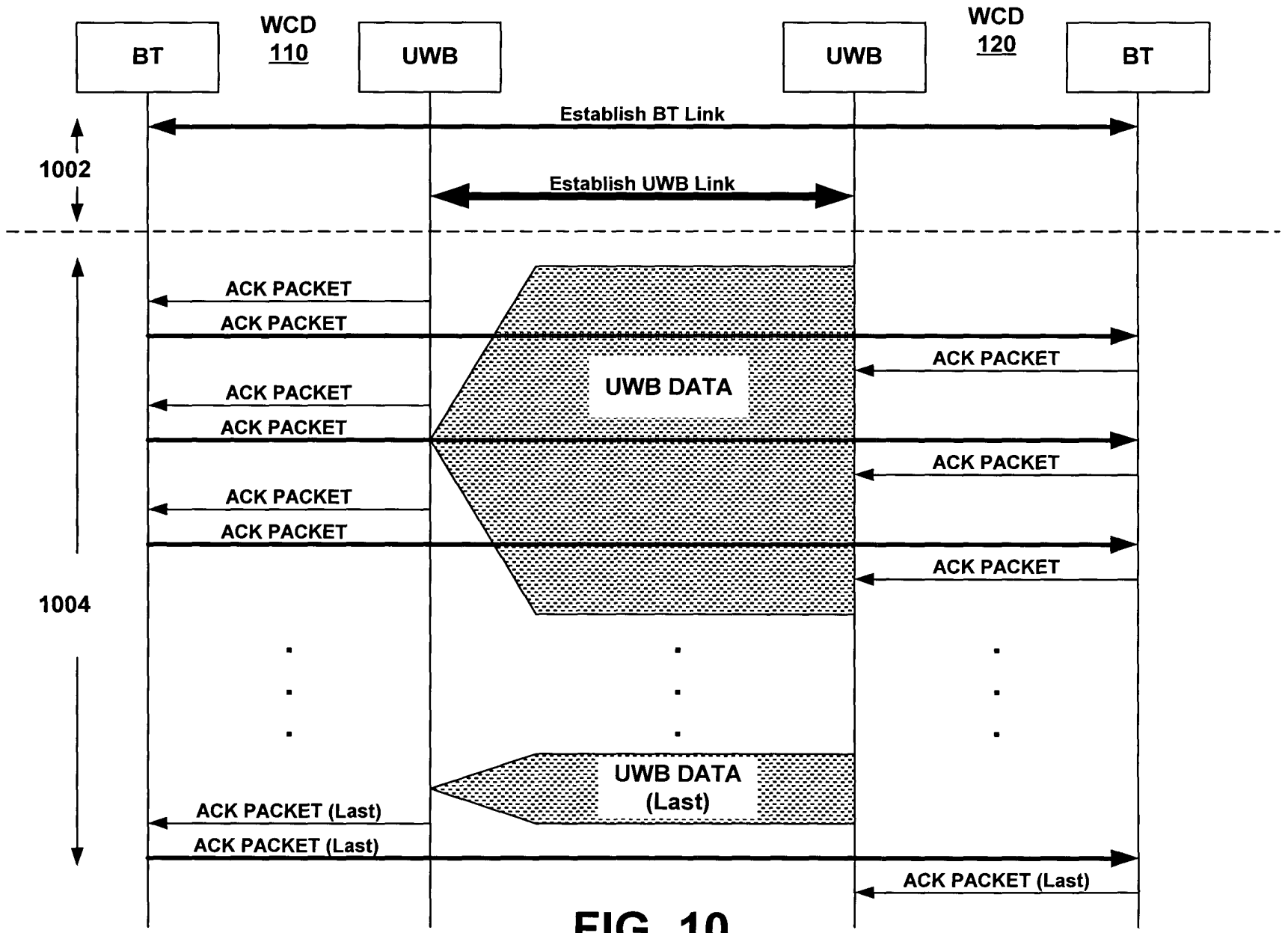
WCD
110
BT
UWB
UWB
WCD
120
BT
Establish BT Link
1002
Establish UWB Link
ACK PACKET
ACK PACKET
ACK PACKET
UWB DATA
ACK PACKET
ACK PACKET
ACK PACKET
ACK PACKET
ACK PACKET
ACK PACKET
1004
UWB DATA
(Last)
ACK PACKET (Last)
ACK PACKET (Last)
ACK PACKET (Last)

FIG. 10